



Published weekly for employees of Lawrence Livermore National Laboratory

Friday, October 22, 2004

Vol. 29, No. 42

Study provides insight to ‘junk DNA’

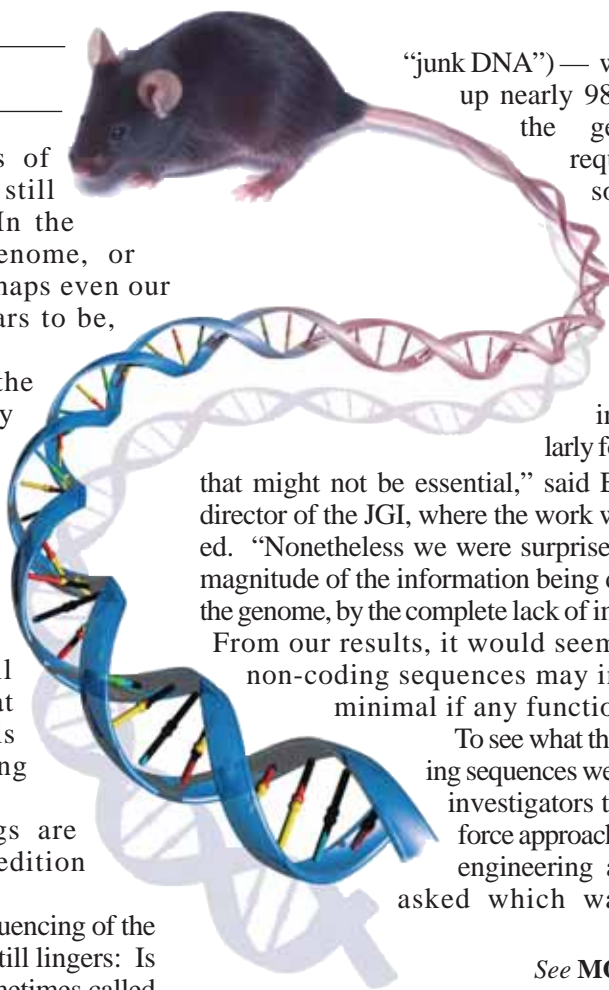
By David Gilbert
NEWSLINE STAFF WRITER

Can you lose scores of pages from a novel and still follow the story line? In the case of the mouse’s genome, or “book of life” — and perhaps even our own — the answer appears to be, astonishingly, “yes.”

Researchers from the Department of Energy Joint Genome Institute (JGI) and Lawrence Berkeley National Laboratory demonstrated that, after deleting large swaths of DNA sequence shared by mice and humans, they were still able to generate mice that suffered no apparent ills from their genomes being millions of letters lighter.

The research findings are published in the Oct. 21 edition of the journal *Nature*.

After completing the sequencing of the human genome, a question still lingers: Is all the non-coding DNA (sometimes called



“junk DNA”) — which makes up nearly 98 percent of the genome — required, or is some of it potentially disposable?

“In these studies, we were looking particularly for sequences that might not be essential,” said Eddy Rubin, director of the JGI, where the work was conducted. “Nonetheless we were surprised, given the magnitude of the information being deleted from the genome, by the complete lack of impact noted. From our results, it would seem that some non-coding sequences may indeed have minimal if any function.”

To see what these non-coding sequences were doing, the investigators took a brute-force approach. “To use an engineering analogy, we asked which walls in the

See **MOUSE**, page 8

Annual salary review process now under way for FY 2005 Lab employee pay allocations

The salary review process is under way and is scheduled to run through December.

Biweekly paid employees will see changes reflected in the paycheck they receive on Dec. 22. Monthly paid employees will receive a special retro check on Dec. 22 with new base salary rates being reflected in their Jan. 1 paycheck.

As in prior years, the Compensation Increase Plan (CIP) proposal submitted to the University of California and the Department of Energy was based on a comparison of the Laboratory’s average salaries against market averages for similar jobs as reported in market surveys.

The resulting program is based on the Laboratory’s competitive position in the markets within which it competes. The table on page 8 outlines the salary program allocations and structure adjustments for FY05.

Compensation will hold employee briefing ses-

See **SALARY**, page 8

See salary program allocations



— Page 8

Lab ‘rain man’ Ron Hafner recognized for contributions to National Weather Service

By Leslie Schwartz
NEWSLINE STAFF WRITER

Ron Hafner knows the weather. He can tell when it will rain hours before local newscasts air daily forecasts. He can predict monthly precipitation patterns and analyze irregularities in temperature. And he’s been doing it for more than 20 years.

Dubbed the “Rain Man” by co-workers and friends, Hafner began recording the daily rainfall and temperature readings for Livermore in 1981 and hasn’t missed a day since.

“I do it because it needs to be done,” he commented. “It’s not tremendously time-consuming and hasn’t been a hardship on my family.”

Before coming to the Lab in 1987, Hafner worked across the street at Sandia as a tritium health physics specialist. Over a 10-day period in late 1979, he spotted a difference in the

See **WEATHER**, page 5

Moses looks to stars to explain fusion puzzle

By Bob Hirschfeld
NEWSLINE STAFF WRITER

What is the best way to explain the purpose and technical concepts of the National Ignition Facility (NIF) to a diverse audience that includes many non-scientists?

One approach would be to dazzle everyone with a lot of fancy terminology including megajoules, petawatts and Full Aperture Backscatter systems.

NIF Project Manager Ed Moses chose a different path last week, when he spoke to the Valley Study Group at the Castlewood Country Club.

Moses titled his presen-

See **MOSES**, page 3



BOB HIRSCHFELD/NEWSLINE

NIF Project Manager Ed Moses (right) is welcomed by Valley Study Group president Andy Lundberg at the Castlewood Country Club last week.



30th anniversary insert
and Run for HOME

— Page 3, insert



Science workshop
expands horizons

— Page 4



Secretary Abraham
unveils ‘What’s Next’

— Page 7



LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Friday 22 **Pleasanton Playhouse** opens its 21st season of Main Stage Musicals at Amador Theater tonight with the Andrew Lloyd Webber/Tim Rice masterpiece, “Evita.” Performances and times are : Oct 22-24 and 29-31; Nov 5-7; Friday and Saturday 8 p.m., Sunday 2 p.m. The theater is at 1155 Santa Rita Road, Pleasanton. To order tickets, call 462-2121 or order online at www.pleasantonplayhouse.com.

Due to system rollout activities, both **EOS** and **TOPS** will be down between 3 p.m. today and 7 a.m. Monday, Oct. 25. Users should not try to access these systems during this time. Contact P&M Customer Support at 3-3448 or pcs@llnl.gov for answers to questions about EOS. For more complete information about Unicard Migration or to see previous articles, go to <http://www-r.llnl.gov/pm/lincs/news/>. Unicard Migration is scheduled to go live on Monday, Oct. 25.

Saturday 23 **Rick Rodgers**, the best-selling author of the 101 series, will serve up a year-round array of festive holiday menus and recipes from his new book, “Celebrations 101,” today at 2 p.m. at Towne Center Books. Rodgers has created 20 foolproof menus featuring more than 100 recipes for entertaining. He has also included his signature timetables and shopping lists for truly stress-free, no-fuss feasting. There also will be a sampling of a few of the recipes from the book. The store is at 555 Main St., Pleasanton.

Monday 25 The Benefits Office will be making a presentation of “**Medicare, 65 and Still Working**” today from noon-1 p.m. in Bldg. 571, room 1301. If you are age 65 or are approaching age 65 and are still working, come and find out how Medicare coordinates with your UC Health Plan. There are only a few spaces left. Call Lisa Payne, 3-0950, to register. The next Medicare presentation will be in January or February.

UP & COMING The **Open Enrollment Benefits Fair** will be held Tuesday, Nov. 2, from 2-5 p.m. in the Central Cafeteria, Bldg. 471. Open Enrollment provides you the chance to enroll in or change your UC-sponsored medical, dental, vision and legal plans, as well as your participation in the Dependent Care Assistance Program (Dep-Care) and the Tax Savings on Insurance Premiums (TIP) Program. The Open Enrollment period is Nov. 1-30.

LLESA’s **Merry Old Holiday Faire** will be held Thursday, Nov. 4, from 11 a.m. to 7 p.m. at the Barn, 3131 Pacific Ave., Livermore. This year’s fair will feature more than 55 vendors selling handcrafted arts and crafts, live entertainment including juggling at noon, ESS children at 4 p.m. and Lab musicians at 6 p.m. Hot and cold meals and snacks will be on sale. Admission is free. No baby strollers. For more information, call 2-9402.



JACQUELINE MCBRIDE/NEWSLINE

Balancing act

Denise Larsen, a marriage and family therapist, presented *The Road to Balance: Your Work and Personal Life* on Oct. 14.

Larsen explored the stressors that occur when trying to combine career and family life and discussed strategies for dealing with work and personal stress.

Larsen provides individual, group and family therapy and has been a trainer for CONCERN: Employee Assistance Program.

Collaborative workshop to focus on homeland security

A joint LLNL/UC Davis workshop covering issues of homeland security will be held Thursday, Nov. 4, from 10 a.m. to 6 p.m., at the University Club located on the UC Davis campus. A continental breakfast will be served at 9:30 a.m. This workshop is the culmination of a joint seminar series between LLNL and UC Davis, and will cover important aspects of homeland security, such as biosecurity, crop and food security, cybersecurity and radiation security.

Allen Christian of the Biology and Biotechnology Research Program and Simon Labov of the Radiation Detection Center will serve as panel members, along with UC Davis staff members and others.

Keynote speaker Michael Carter, of LLNL’s Nonproliferation, Arms Control and International Security Directorate, who is currently on special assignment in the Department of Homeland

Security (DHS) in Washington D.C., will speak about “The Science and Technology Challenges in Homeland Security.”

Before starting at DHS, Carter served as a technical adviser to the Homeland Security Transition Planning Office with emphasis on radiological and nuclear countermeasures.

Following the keynote address, there will be two panels with emphasis focused on the following areas: biological/chemical security; radiation/nuclear security; crop and food security and cybersecurity. There will be afternoon breakout groups for each focus area followed by summation reports from each group.

Register on the Website <http://ucdlecsures.llnl.gov> by Tuesday, Nov. 2. Registration is free. For more information, contact Harry Radousky, 2-4478, Brenda Foster, 3-8257.

IN MEMORIAM

Wesley Edwin Farley Jr.

Wesley Edwin Farley Jr., or “Ed,” as his colleagues and friends called him, died Aug. 23 after a short illness.

Farley, a Danville resident, graduated from the University of Pacific in Stockton in 1959 with a double major in engineering and physics. He started to work in the Lab’s B-Division in 1960 as an experimental physicist in the weapons design program and after a couple of years went to work for Physics International in San Leandro. Two years later, he returned to B-Division where he worked with David Oakley’s group studying the effects of radiation exposure of warhead components using underground nuclear explosions in Nevada.

Years later he joined Hans Kruger’s Vulnerability and Hardening Group, mainly doing Monte Carlo radiation transport calculations. In 1972, when D Division was founded, Farley transferred to Kruger’s Weapon Effects Group, where he worked until his retirement in 1998. He continued working in the Weapon Effects group as a part-time retired employee until the time of his death.

During his career at the Lab, Farley conducted radiation transport calculations and field and laboratory experiments that contributed significantly to the radiation hardening of U.S. strategic nuclear warheads against Soviet nuclear interceptors.

Farley is survived by his wife Gloria; daughters Andrea and Jessica; and seven grandchildren.

Anyone who would like to share some thoughts or anecdotes about Farley is encouraged to write to JessFB@mac.com.

Donations in his memory may be made to the American Lung Association.

Newsline

NewsLine is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

Contacts:

Media & Communications manager: Lynda Seaver, 3-3103

NewsLine editor: Don Johnston, 3-4902

Contributing writers: Bob Hirschfeld, 2-2379; Charles Osolin, 2-8367; David Schwoegler, 2-6900; Anne M. Stark, 2-9799; Stephen Wampler, 3-3107. For an extended list of Lab beats and contacts, see <http://www.llnl.gov/llnl/06news/NewsMedia/contact.html>

Photographer: Jacqueline McBride

Designer: Julie Korhummel, 2-9709

Distribution: Mail Services at LLNL

Public Affairs Office: L-797 (Trailer 6527), LLNL, P.O. Box 808, Livermore, CA 94551-0808

Telephone: (925) 422-4599; Fax: (925) 422-9291

e-mail: newsline@llnl.gov or newsonline@llnl.gov

Web site: <http://www.llnl.gov/PAO/>



AROUND THE LAB

UC President Dynes to participate in Run for HOME

The Run for HOME kicks off the 2004 campaign for “Helping Others More Effectively” and will include appearances by UC President Robert Dynes, Olympic athlete Kristin Heaston and Olympic swim coach Michael Bottom.

The theme of this year’s campaign is “Bring HOME the gold.” Everyone is encouraged to dress up in costumes as they participate in the run and visit the nonprofit-agency booths at the HOME fair on Thursday, Oct. 28.

This year’s run is sponsored by the Defense and Nuclear Technologies (DNT) Directorate and is chaired by Patti Lann, personnel and administrative manager for DNT.

Dynes will participate in the Run for HOME. Director Michael Anastasio will start the race for the rollerbladers, runners and walkers at noon at the Livermore site.

Kristin Heaston, a 2004 Olympic trials runner-up in the shot put and a 1999 UC Berkeley graduate, also will attend the event. Heaston was the first woman to throw in the qualifying round for the 2004 Olympic Games, making her the first woman ever to compete at Olympia.

Michael Bottom, co-head swim coach at UC Berkeley, coached the two men who tied for the gold medal in the 50-meter freestyle at the 2000 Olympics in Sydney, Australia. This year in the 50-meter freestyle at the Athens Olympic Games, only one-hundredth of a second separated the gold medalist Gary Hall Jr. and silver medalist Cal’s Dujie Drangaja. Bottom coached both.

The HOME Fair

All employees are invited to learn about some of the nonprofit agencies featured in the HOME Campaign by visiting the HOME fair, which will be in parking lot Z-1, south of Bldg. 132. Representatives from 134 agencies will be available to provide information, answer questions, and discuss how their organizations

help the community. The fair will be open from 11 a.m. to 1 p.m.

Nonprofit agencies received more than \$1.5 million from last year’s HOME Campaign, which had an

rollerblade, run or walk in the Run for HOME. Bicycles, scooters and motorized vehicles are not allowed in the event. All participants will receive a free Run for HOME T-shirt and snacks. In addition, at the end of the race, participants can request Run for HOME certificates by filling out and turning in cards with their name and race time. Cards will be handed out at the finish line.

Race participants will not need to have their badges touched and checked when reentering the Laboratory because security officers will be stationed throughout the course to ensure that no one outside the Lab joins the run.

Participants at the Livermore site will begin their 3,000-meter course at noon. Rollerbladers will start first, followed by runners and then walkers.

After the race, donation-award certificates will be presented to the fastest male and female skaters, runners and walkers in the open and masters categories.

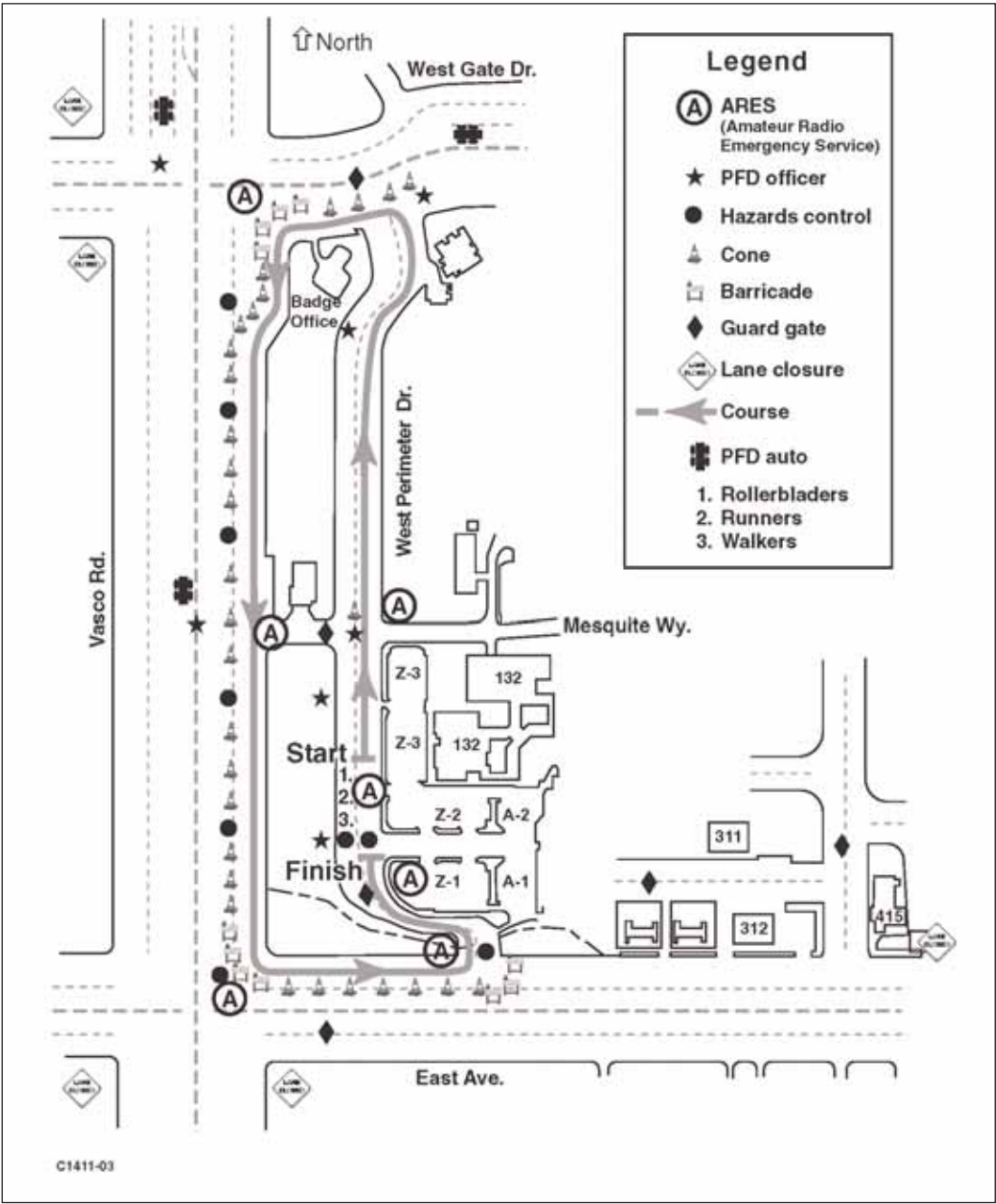
Runners at Site 300 also will begin their 3,000-meter course at noon. An awards ceremony will follow, with donation-award certificates given to the fastest male and female runners in the open and masters categories.

Fun and entertainment

Participants are encouraged to dress up in costumes for the Run for HOME, keeping in mind this year’s theme: “Bring HOME the Gold.” Centipedes, superheroes, giant insects and hula hoopers are a few of the creatures that have participated in past runs.

A costume-judging station will be set up at the end of the Livermore site’s run course. Judges will determine the winners in a number of categories.

Music at the Livermore site will be provided by TID’s “Free Lunch” Band, a classic rock/blues ensemble made up of 12 Technical Information Department employees: Jerry Alfaro, percussion; Victoria Ball, Scott Dougherty, Isom Harrison and Kitty Madison, vocals; Lee Baker, bass guitar, vocals; Ryan Bernat, bass guitar; Sharon Emery, keyboard, vocals; Dan Moore, blues harmonica; Tim Peck, Tom Reason and Bob Smith, electric guitars.



The 2004 Run for HOME will be a 3,000-meter course on the west side of the Laboratory. Rollerbladers begin at noon with runners and walkers following.

employee participation rate of 44 percent. The Chemistry and Materials Science Directorate, the sponsor for the 2004 HOME Campaign, has set a fund-raising goal of \$1.6 million and hopes that an even greater percentage of employees will support local charities through this year’s campaign.

The race

Members of the Laboratory community may

MOSES

Continued from page 1

tation “Catch A Falling Star” and zeroed in on questions about the sun that have puzzled humans since the earliest of civilizations.

Ancient Greek and Roman intellectuals had their own models of the sun’s heat but it was not until the Renaissance that it was determined that they needed to know the sun’s size and its distance from earth in order to calculate its heat. The answers came slowly, centuries later, as Galileo, Cassini, Newton and Cavendish added to the volume of necessary physics knowledge. Unfortunately, the only thing they learned was that their ideas that the sun was “burning” proved to be wrong.

Further ideas arose in the late 19th and early 20th century, with the discovery of X-rays, the atom and its nuclear structure and finally Einstein’s theory of relativity. In the 1930s, Hans Bethe finally worked out the overall story of the sun as a thermonuclear fire.

Moses told his audience that scientists were able to duplicate the sun’s conditions for the first time in 1952, with the detonation of the hydrogen bomb. LLNL scientists were immediately on the hunt to understand this better and recreate these conditions in a smaller, more controlled and safe manner.

And that brings us to LLNL and NIF. By 2008, its 192 lasers will be able to reproduce the intense heat and pressures necessary to produce fusion, and fulfill its missions for the Stockpile Stewardship Program, basic scientific research, and setting

the stage for the development of fusion energy.

In NIF, experiments will be undertaken at temperatures of about 100 million degrees Celsius, and under pressures equal to 10 billion Earth atmospheres. By comparison, Moses pointed out that hot volcanic lava is only about 1,000 degrees Celsius, and the pressure in the deepest ocean is only about 1,000 atmospheres. This will be the end of one story, recreating the conditions in the sun and stars, but the beginning on another, doing astrophysics and Laboratory missions in a laboratory.

Moses ended the night showing results from NIF’s already functional laser beams. Even though the facility is only 2 percent operational at this time, it has already produced stunning results in several series of physics experiments.



NEWS YOU CAN USE

Lab employees play big role at math and science workshop

On October 2, more than 300 young women in grades 6 through 12 converged on Stockton's University of the Pacific (UOP) campus for the "Twelfth Annual San Joaquin County 'Expanding Your Horizons (EYH) in Math and Science Conference.'"

The yearly conference, part of the Math and Science Network, is sponsored by LLNL, Sandia National Laboratories, and UOP.

Rita Ng, a 26-year-old Tracy native, was the keynote speaker. Ng graduated from Stanford University, majoring in Human Biology and is currently completing her fourth year at the University of

California San Francisco (UCSF) medical school. A talented classical pianist, Rita was crowned Miss California in 2000 and was second runner up at the Miss America Pageant in 2001.

The conference also featured some 30 hands-on, interactive workshops in areas like biology, robotics and chemistry. More than half of the workshops were led



Rita Ng

by LLNL staff.

Linda Dibble of the Lab's Cyber Security Program has co-chaired the conference for the past seven years. Volunteers are employees from LLNL and Sandia, members of the community, the University of the Pacific School of Engineering staff, and students who are members of the Society of Women Engineers.

Technical Meeting Calendar

Friday
22

ENGINEERING/THE CENTER FOR ADVANCED SIGNAL & IMAGING SCIENCES

Talks and abstracts for the two-day "Signal and Imaging Sciences Workshop" on Nov. 18-19 are due today (Oct. 22). Two guest keynote speakers will present at the C.A.S.I.S Workshop — Alan Oppenheim of MIT and Jim McClellan of Georgia Tech. Both are among the world's experts in signal processing, and they will share their work and insights with the group. Sessions will begin at 9 a.m. and will be held in the Bldg. 123 auditorium. There is no cost to attend the workshop. To register, attend or give a presentation, contact Dora Da Rosa, darosa2@llnl.gov, or 2-4797.

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"Heavy Elements in the Intergalactic Medium," by Anthony Aguirre, UC Santa Cruz. Noon, Bldg. 319, room 205. All attendees need to be badged. Contact: Wil van Breugel, 2-7195, or Rachael Mills, 2-6333.

ELECTRONICS ENGINEERING TECHNOLOGIES DIVISION

"Software Control and Monitoring of the Autonomous Pathogen Detection System," by Ujwal Setlur. 10-11 a.m., Bldg. 141, room 1104 Nyquist Room. Classification of location: P. Contact: Becka Gordon, 2-2199.

Monday
25

CHEMICAL BIOLOGY & NUCLEAR SCIENCE /BIOSECURITY & NANOSCIENCES LAB

"Light- and Drug-Activated Proteins: From Basic Biology to Potential Therapies," by David S. Lawrence, Albert Einstein College of Medicine, Bronx, NY. 2 p.m., Bldg. 151, room

1209. Foreign nationals may attend if approved plan is on file, which includes Bldg. 151. Contact: Jim De Yoreo, 3-4240, Jeff Tok, 3-1549, or Katie Thomas, 2-7903.

Tuesday
26

MPI TOPICS COLLOQUIUM

"Towards Automatic Application Profiling," by David Skinner, Lawrence Berkeley National Laboratory. 10 a.m., Bldg 451, room 1025 (White Room). Contact: Terry Jones, 3-9834, trj@llnl.gov.

N DIVISION

"AF-DMC Study of Ground State Properties of Neutron Drops and Oxygen Isotopes," by Francesco Pederiva. 10:30 a.m., Bldg. 319, room 205. Contact: Erich Ormand, 2-8194, or Annette Cook, 2-7856

Thursday
28

LLNL//UC DAVIS

"Advanced Detectors to Counter the Nuclear Terrorism Threat," by Simon Labov, director of the Radiation Detection Center. 3:30 p.m., 1065 Kemper Hall, UC Davis campus. Check the University Relations Program's Web site at <http://ucdlectures.llnl.gov> for detailed information on the lectures. Contact: Harry Radousky, 2-4478, or Brenda Foster, 3-8257.

BIOLOGY & BIOTECHNOLOGY RESEARCH PROGRAM

"Intracellular Sensors Based on Surface-Enhanced Raman Scattering (SERS)," by Chad Talley, Chemical Biology & Nuclear Science Division. 10:30 a.m., Bldg. 361, auditorium - Darwin Room. For the complete schedule of seminar speakers, including titles, abstracts, and supporting information, visit http://doves.llnl.gov/bbrp_seminars/. Refreshments will be served 10 minutes

prior to the seminar. Contact: Alice Yamada, 2-4723, or Nancy Wrigley, 3-6287.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

"Direct Numerical Simulation of Particle-laden Turbulent Flow Over a Backward-facing Step," by Antonino Ferrante, UC Irvine. 2 p.m., Trailer 2107, room 1025 (property protection area). For more information, go to <http://www.llnl.gov/casc/calendar.shtml>. Contact: Bob Lee, 2-1859, or Leslie Bills, 3-8927.

Friday
29

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"High-Redshift Galaxies and the Epoch of Reionization," by Daniel Stern, Caltech. Noon, Bldg. 319, room 205. All attendees need to be badged. Contact: Wil van Breugel, 2-7195, or Rachael Mills, 2-6333.

CHEMISTRY & MATERIALS SCIENCE /MATERIALS SCIENCE & TECHNOLOGY DIVISION

"Monte Carlo Simulations of KDP Crystal Growth," by Luis A. Zepeda-Ruiz, Materials Science & Technology Division. 3:30 p.m., Bldg. 235, Gold Room. Coffee and cookies will be served at 3:20 p.m. Contact: Tom Felter, 2-8012, or Rebecca Browning, 2-5500.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the newsgroup llnl.meeting, contact the registrar at registrar@llnl.gov.

NEWS OF NOTE



Lab SWAT team on target at regional competition

By James Balch

PFD/SRT

The “Best in the West” SWAT invitational tactical competition is an annual invitation-only competition for law enforcement SWAT teams west of the Mississippi River.

This year it was conducted Sept. 23-24 at the Santa Clara County Sheriffs range. The events included an endurance course or team run, a sniper course, two-officer combat course, jungle trail, combined weapons course and team assault course.

This is the first year the Lab’s Special Response Team (SRT) has been invited. Team members felt that a third-place finish in the Department of Energy nationals this year in South Carolina earned them the recognition necessary to rate inclusion. The Lab’s team included SPO-3s: James Balch, Dan Repose, John Sims, Scott Batson, Tony Pirone, and Justin Miller. Coaches were Kevin Morris and Lonnie Alvey.

The Livermore SRT was categorized as a federal law enforcement SRT/SWAT team for the competition and performed very well. The Lab team took second



COURTESY OF JAMES BALCH.

From left to right: Coach Lonnie Alvey, Daniel Repose, John Sims, Tony Pirone, Team Captain James Balch, Josh Basso, Scott Batson, Chuck Johnson and Coach Kevin Morris. Justin Miller not pictured.

place in the team run event. Balch and Pirone took first place in the two-officer combat event. And the LLNL team finished 10th overall out of some 30 agencies.

Lab SRT members were at a slight disadvantage because Lab training does not cover all of the course elements or weaponry in the competition. The team’s performance was especially noteworthy because law

enforcement SWAT teams train more extensively with the equipment and tactics used during this competition. Fortunately, some Livermore team members were familiar with these skills from former career assignments, and the Pro-Force shooters succeeded in holding their own.

California competitors included Contra Costa and Alameda County SWAT, San Francisco SWAT, Ventura and BART SWAT. For the second consecutive year the overall winner was Sunnyside SWAT.

The two-day event was intensely competitive and physically demanding. The Lab’s SRT team earned a lot of respect from other agencies.

The sponsoring range staff was most impressed with the Livermore shooters’ proficiency in the live-fire shoot-house events. It’s a discipline practiced and rehearsed rigorously at the Lab range.

Team shooters were complimented numerous times by other teams as well.

WEATHER

Continued from page 1

amount of tritium released and, after careful analysis, linked the change to the recent rainfall in the local area.

“The rainfall caused a step-change in relative and absolute humidity,” he said. “I was seeing theoretical physical chemistry on a scale as gross as a building. I could take what I was seeing and tie it right back to the *Debye Theory of the Solid State*.”

From this experience, Hafner recognized the important impact weather has on science. “I’ve always been interested in the sciences of any kind, and particularly in how the sciences go together,” he said.

In June of 1981, he began taking daily measurements out of his Livermore backyard, becoming the seventh person to participate in the unbroken chain of continuous weather readings in Livermore, dating back to March 1870.

Every day at 6 p.m., Hafner takes a “weather snapshot of Livermore” by logging the official temperature and precipitation data for that day. Although the temperature data comes from a sensor in his backyard, the temperature read-out device is in his garage. Precipitation data is collected, in his backyard, using a dipstick, combined with a National Weather Service reducing funnel.

“It’s the way they started doing it [measuring rainfall] in the 1890s, and it’s the way the weather service still does it. The technology hasn’t changed in 120 years,” Hafner said.



JACQUELINE MCBRIDE/NEWSLINE

Ron Hafner takes weather measurements from a sensor in the backyard of his Livermore home.

He then compiles his data in a worksheet that makes it easy to compare the Livermore data against other monthly and annual averages. At the end of each month, he sends his worksheet to the National Weather Service, in Ashville, NC, where they combine all of the statistics from all of the cooperative weather observers throughout the nation.

“My data is the raw data,” Hafner said. He

is the first to know everything, and has even called up the weather service to report new record highs and lows or faulty temperature averages.

As the only California recipient of one of the 25 National Weather Service’s annual Holm Awards, Hafner’s accomplishments as a cooperative observer have been nationally recognized.

Named after John Campanius Holm, a Lutheran minister known to be the first person to collect systematic weather observations in the American Colonies, the award highlights the countless hours of volunteer work Hafner has dedicated to weather data collection. The Holm Award was created in 1959 as a way for the National Weather Service to honor cooperative weather observers for outstanding accomplishments in the field of meteorological observation.

Hafner will receive a plaque, an official National Weather Service jacket and a certificate signed by the administrator of the National Oceanic and Atmospheric Administration.

When asked about how he feels about getting such an award, Hafner only replied that he “didn’t get into this business to get awards. I needed the information to better understand the mechanisms behind so-called tritium releases across the Department of Energy Complex, that might be related to weather phenomena.”

More than 11,000 people and organizations across the nation participate in the National Weather Service’s cooperative observer program, which began 120 years ago. Their information provides the historical climatological record for the United States.



CLASSIFIED ADS

See complete classified ad listings at <https://www.ais.llnl.gov/newsline/ads/>

AUTOMOBILES

2001 - Honda Odyssey, Silver LX, DVD, CD, Roof Rack, Keyless Entry, PW, PL, CC, 49k miles, \$18,450/B.O. 925-373-6814

1987 - Honda Civic DX 139,900 miles. Runs good,35 MPG Recent brake job, good tires, body straight. \$1800 925-642-2877

1986 - Ford Bronco 240K miles, \$950 209-823-5169

1996 - Taurus GL, \$2600, 98K miles, AT, power door locks and windows, remote access, smogged, newer tires. Runs great. 925-449-6399

1994 - Buick LaSabre Limited, 110K miles, fully equipped, sandlewood exterior with matching interior leather, maintenance records available, \$2500. 925-443-7082

1997 - Beautiful ElDorado. Low miles, leather, superior sound, CD/cass, all power, excellent conditon. Always garaged. Have to see to appreciate. 510-582-2938

2000 - Mitsubishi Montero Sport Limited, 2WD, black, tan heated leather seats, fully loaded, 88,000 miles, excellent condition, \$12,800 OBO. 209-914-5525

1998 - Dodge Neon, 5 speed, 173,000 mi. new timing belt, new clutch, new tires, ac, cd, runs great. \$2000 209-834-1331

1996 - Buick Century, Loaded, Excellent condition, \$3,000.00 obo 209-833-6990

1994 - Camaro V6 White/tan \$5,600 OBO. Manual, reg paid for 2004, 85K miles, Clean interior and engine. 925-518-4088

1997 - BMW Z3 Roadster, 23K miles!l, Silver/Black leather int., 5sp man., Convertable, mint condition., Like new, \$15,000. 925-779-1756

1991 - Isuzu Trooper, Needs timing cover gasket; under \$100 but labor intensive Price \$1000 or b/o. 925-371-2949

1998 - Mercedes Benz ML320, pwr everything, heated seats, 6cd, tow package, very clean in/out runs and rides perfect, 162k miles, books at 12k \$9,500 925-980-9336

1997 - Red Honda Passport 2/4WD 5spd 78K mi, gd mech cnd, super cln, rf rack, AC, EW, \$6,800 650-572-8564

2003 - Jetta GL-Auto trans., white w/ blk cloth int, cd, pwr win/entry, great commuter

23/29MPG. 46k mi, \$14,600 obo 209-380-1953

1998 - Chevy Camaro, V6 with high performance package, Bose sound, power everything, T-Tops, more. Excellent cond., 65K miles. \$9000,obo 925-550-4179

1990 - 1990 Mazda MX6, 130k miles, good condition, A/C, great gas mileage. \$1200 OBO. Call (925) 443-6002 or (925) 784-7557 925-443-6002

2003 - Toyoate Corolla S, 28K miles, A/T, tinted windows, cruise, alarm, pwr everything, Excellent Condition, \$13,500 obo 209-832-8945

2002 - VW Passat, 1.8L Turbo, auto-all, 34k miles, 32 mpg-H, \$1,800 in extras, cust-chrome wheels, full warr to 2006, \$17,550 all maint. docs & manuals 209-832-2056

AUTOMOBILE ACCESSORIES

13 inch TIRES. 2 Michelin 185/70/13 Radial tires, good condition only \$20 both. Livermore 925-447-7070

BICYCLES

Girls 10 speed bike w/gel seat. Like new. \$35 209-403-4942

BOATS

1986, Reinell, 185, 350 V-8, Open Bow, Good Condition. \$4,500 OBO, 925-833-8339

CAMERAS

Canon EOS 750 QD w/35-80mm EF power zoom, \$100; Canon EOS Rebel Sii w/28-80mm AF, \$125. 925-757-6896

ELECTRONIC EQUIPMENT

Nokia 2260 Digital Phone. Brand new in box. \$25 209-483-8719

GIVEAWAY

Large healthy Jade plant in planter box. Livermore. Bring truck. 925-449-6334

Carpet padding. Leftover new remnant on roll. 6 ft wide more than 10 ft. long. 925-253-4945

Large assortment of moving boxes, excellent condition. You haul. 925-960-1890

Cement Mixer on wheels with gasoline motor. 510-568-3314

FREE GIVEAWAY LPs 33 1/3 -

Couple hundred LPs. Mostly classical music. All in excellent condition. Must take all. 209-480-2486

HOUSEHOLD

Peg-Perego Pliko stroller. Dark Blue. Excellent condition, \$130. Little Tykes lg. folding picnic table, \$30. 925-294-9022

Signature dishes-Botanical (trellis edge w/fruit). 14ea 5-pc place settings, + few extra. Good starter set. VG condition. \$25. 925-447-6784

Hitachi Bread Machine. Model HB-B102. Works fine, just never use it. \$30 510-530-1884

Bar stools w/ backs (4). Teak with neutral tweed fabric. Contemporary style. Excellent condition. \$50 each or \$175 for all 4. 925-447-6250

Large frameless mirror 36î x 70î excellent condition. \$20 925-455-0926

Stylish love-seat/(small couch). Decorative fabric with dark greens, burgundy, and tope colors. Great condition. Must sell soon, asking \$65 o.b.o. 925-606-0825

\$100 OBO Cal. King Maple platform bed with 10 drawers under it. Excellent condition, 3 years old. 925-455-8455

Solid Oak Entertainment Center - 62L x 22W x 51H. Lead-ed glass doors w/3 shelves and lower cabinets. Fits up to 32 in. TV. Pictures available. \$300 925-648-1866

Waveless King Size Water Bed Mattress, made by Aqua Queen with heater system, Excellant Shape. \$75.00 209-835-9469

Television-hardly used 19 inch color \$75. 209-599-6246

Sofa sleeper and love seat set. Must sell. Only \$300.00 for both. Excellent condition! 209-914-4979

Bunk Beds solid, dresser, desk w/hutch, chair, bookcase, storage drawer, ladder, removeable rails, head & foot boards, mattresses. \$1200. 209-579-7673

Kitchen table, solid oak, 42 wide X 72 long, including 1 leaf, 4 oak chairs with firm padded fabric, \$350. 925-447-2508

Executive Oak desk with key-board tray \$300/bo 209-403-4942

Computer desk with wooden shelves, metal frame, \$25 209-835-2416

CARDBOARD BOXES, STURDY for moving/storage: 40 for \$50 Call 925-447-7070

LOST & FOUND

Prescription glasses found in B-211 on top of downstairs mailboxes. Silver rim/frame. During recarpeting/construction. 510-207-2097

FOUND: Glasses in Kaiser Permanente case. D2 parking lot near T4161. Call 2-3484

MISCELLANEOUS

Proform Cardiocross 650 elliptical triner w/ arm motion. Great condition, \$170. USB to Motorola cell-phone charger cable, \$5. 925-294-9022

COMICS for SALE Marvel and DC Some 1970 others mostly 1980 in very good condition, selling in sets. Best offer. 510-978-5048

Heavy bag stand, 100LB punch/kick bag, plus speed bag platform, gloves included. \$200 OBO 209-475-0405

18in Obsession Telescope. FeatherTouch focuser, shroud, Telrad w/dew shield, 8x50 right angle finder, Lasermx holographic laser collimator. 4000.00 209-839-9441

Jenn Aire cook top. Propane burners and grill with down draft vent fan. White, good condition. would make good BBQ set up. \$45.00 209-599-8422

DOUBLE STROLLER. Baby Trend Sit-N-Stand LX IV Plus. Reconfigurable, collapsible, clean, and in good condition. \$75. 925-454-8827

Chemical Glove Box Labconco model 50004. 3x3ft 2 doors exhaust fan and aux plug good shape can deliver 250.00 OBO photo available 209-526-6272

Solid oak desk with hutch + printer cabinet. Pieces can attach together to make a corner desk if desired. Has total of 4 drawers, Asking \$95 o.b.o. 925-606-0825

Plexiglass sewing machine extension for Pfaff 7570. Never been used. \$25 925-447-3432

Got rid of my POOL! Tele-dyne Laars Series One Model EPC II pool/spa gas heater: \$100. Magnetek 3/4 and 1.5 HP pool/spa pumps %50. 925-443-7434

Dining Set: Table-58X40 ext to 72in.; Hutch-69in. high 58in. wide, Early American Maple, 3 glass doors, 5 draw-

ers; Chairs-6 Oak; \$500/obo 925-784-5850

Basketball hoop, portable. \$40/bo 209-403-4942

MICROWAVE Oven GE Spacesaver - mounts over stove. Black. Works fine. Only \$30 Livermore. 925-447-7070

MOTORCYCLES

7178 - 2 BMW R75/5 and R100RS Ran (spelled corectly) make offer one or both 209-526-6272

2004 - HD Softail Deuce. 2800 miles. Black with lots of chrome. Custom pipes, 180 rear tire kit w/chrome swing-arm. Call for more details. \$21,000 obo. 925-813-0973

2001 - Suzuki GSXR1000, very good condition, 15,545 miles, blue&white well maintained, blueprinted chasis, 2002 bodywork salvage title. All Stock \$6200/OBO 925-456-0758

MUSIC INSTRUMENTS

Hard-sided case for cornet. Very good condition. \$15. 925-443-3075

Grand piano, Young Chang G-185 (6 ft., 1 in.). Excellent condition; nice touch and tone. \$4,000.00 925-447-4352

Larrivee Guitar Solid top Spruce top and Maple (beautiful) sides and back. Near perfect condition. \$925.00 925-424-2982 925-240-9752

Didgeridoos(2), good for beginner, \$60 ea. or both for \$100. 925-634-2701

Cymbal stands. Tama brand,double braced,like new! \$55 each. 925-373-6255

PETS & SUPPLIES

Rescued kitties-vaccinated, spay/neutered & dewormed looking for loving homes.Very sweet. Many to choose from. \$75 adoption fee 209-833-0607

BEAGLE, male, 16 mo old, AKC Registered, nice disposition, parents on site. \$100. Call for info. 925-449-9078

AKC registered Australian Shepherds. Champion blood-lines. Ready to go home Dec 5th! Black tri-color, blue merle. Males \$450, females \$550. 209-824-2394

I rescued a filly and now need your help. She survived severe collic and now needs a hernia operation. Donations

NEWS OF NOTE

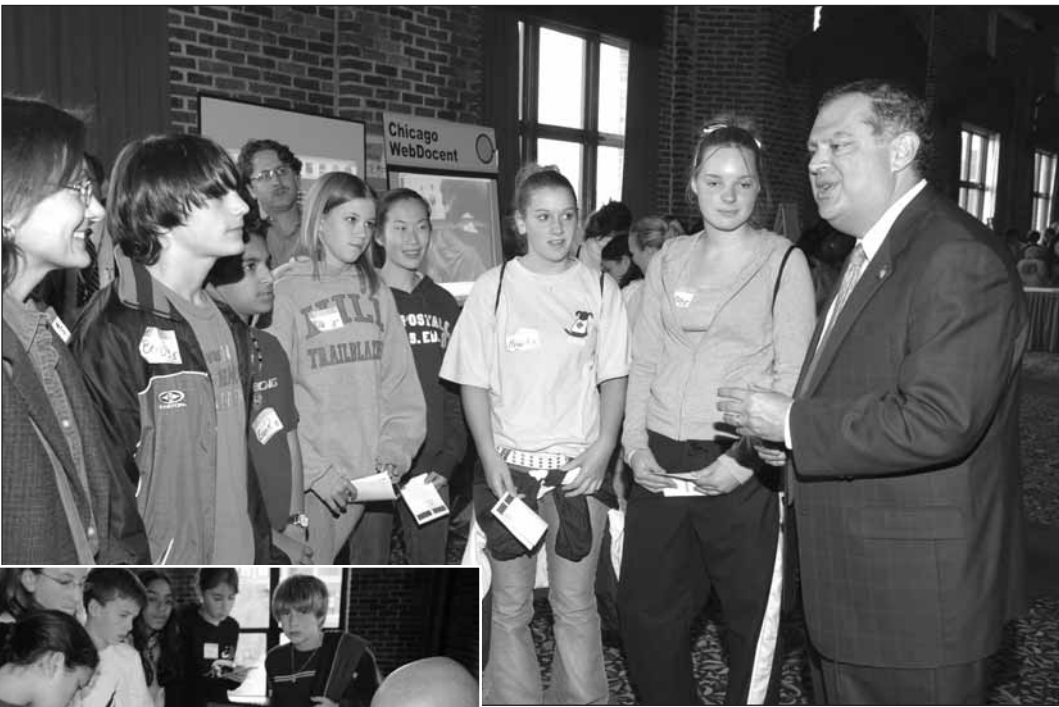


Secretary Abraham unveils ‘What’s Next’ in science

Energy Secretary Spencer Abraham last week hosted the Department of Energy’s “What’s Next Expo,” the first step in his science education initiative launched earlier this year.

The Chicago expo, held last Thursday, featured exhibits of “Future Science for Future Scientists” to encourage Chicago-area students attending the conference to pursue careers in math and science.

Livermore hosted a booth of its own, which featured DNA extraction and jewelry making and a spectroscopy experiment where students could look at the frequency of light and learn how light is used to study the stars. Stan Hitomi, director of the Edward Teller



Above, Energy Secretary Spencer Abraham discusses science with Chicago-area middle school students. At left, Richard Farnsworth of the Lab’s STEP explains to students how a spectrometer works.

GEORGE JOCH/ARGONNNE NATIONAL LABORATORY

DAVID GILBERT/NEWSLINE

Education Center, Richard Farnsworth, manager of Livermore’s Science and Technology Education Program (STEP), Ann Willoughby of Public

Affairs, David Gilbert of the Joint Genome Institute and Elaine Gong of the Lawrence Berkeley Lab staffed the booth.

Students toured the nearly 50 interactive and instructional exhibits of cutting-edge science and technology staffed by science professionals from 14 of DOE’s national laboratories and a number of private companies.

To help them navigate the many exhibits set up around Navy Pier’s Grand Ballroom, students were given special “What’s Next Passports,” which featured a message from the Secretary, a map and a list of exhibits. Participants were asked to get their passports stamped by 10 of the learning stations.

“We decided to hold an annual science conference to highlight the most exciting new areas of science and technology that are being studied in the U.S. and around the world,” Abraham told the Chicago-area middle-school students. “This What’s Next Expo is the very first of these conferences — and I congratulate you all for being pioneers. I sincerely hope that someday in the future, when one of you steps up to receive the Nobel Prize for physics or chemistry, you can say you owe it in part to What’s Next.”

will cover surgery costs. 209-847-5310

Sweet & loving 9month siberian husky, to good home. Shots, spayed & microchipped. Call for photo. 209-522-2528

Beautiful kittens long and short haired born 9/1, free to loving home ONLY. Pictures Available. 925-684-2532

RECREATION EQUIPMENT

Treadmill, 12 MPH, inclines. \$300 OBO 209-475-0405

Treadmill - NordicTrack EXP 1000S with multiple workout options, Comfort Track cushioning system, quiet drive, and power lift. \$449 OBO 209-521-7702

Soloflex - Leg extension, butterfly attachment, bands, excellent condition. \$500 OBO. 209-475-0405

Two external frame backpacks: large High Trails, blue; smaller Jansport, green/black. \$15 each. Ron, 925-757-6896

Scuba weight belt, pouch type with soft weights, best offer. 925-634-2701

1977 Cessna Centurian Turbo-210 1/5 share 925-294-8469

Gazelle exercise machine, 12 freestyle low- to no-impact exer-

cises, \$100 209-835-2416

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

Lafayette - LaMO Linda Vanpool (also WALNUT CREEK stop at Rudgear Rd): reclining seats, reading lights, 7:45-4:45, \$105/mo (pretax reduction available) 925-943-6701, ext. 2-3005

El Cerrito - Berkeley Vanpool has openings for full time or casual riders. M-F 7:45 am to 4:30 pm work schedule. 510-524-5769, ext. 3-7995

San Jose/Fremont - 14 passenger van needs riders. Leaves San Jose/Berryessa 6:40; leaves Fremont/Mission 7:00; arrives LLNL 7:30; leaves LLNL 4:30. Very reliable. 408-238-1909, ext. 3-3057

Pleasant Hill/Walnut Creek - 14 passenger Enterprise luxury vanpool from PH BART. Arrive 7:50am/leave 4:50pm. Additional Concord pickup location possible. ~\$130/mo. 925-943-5443, ext. 2-5793

Orinda - Carpool from Lamorinda seeking 4th rider/driver. Lab hours 8am-4:45pm. Meets near St. Stephens and Hghwy 24. No

smoking. 925-253-0498, ext. 2-9823

SERVICES

Margarita machine for rent. Best price in the bay, great for parties! 209-481-5442

ClutterLess(CL) Self Help Group. Is clutter stressing you out? Mondays 7-8:30 PM. Just come: Pleasanton Presbyterian, Rm 7, 4300 Mirador Drive, or 925-443-0766

Painting, home repairs, heating and air conditioning repairs and installation. Small or large jobs, free estimates. 925-828-6190

Redecorating? Consider GRANITE countertops installed in your kitchen and/or bath! Discounted LLNL rates. Free estimates. 209-814-6865

CARPET-LAMINATE Get your home ready for the holidays! Licensed/bonded/insured, 30 yrs exp., reasonable rates. 925-516-9510

SHARED HOUSING

Livermore - furnished room for rent. Clean/quiet. No pets/no smoking. Deposit. Share utilities. \$550/month. 925-449-1128

Tracy, - Roommate wanted m/f,

non-smoking, 1b/1b/1g, great loc w/clubhouse, lakeview, 2800sqft., \$850 mo. 209-321-5931

TRUCKS & TRAILERS

1997 - Dodge Dakota standard, 5 speed, AC, dual front air bags, sliding rear window, excellent condition, low 55K miles, kbb at \$5,595, asking \$4,950 209-351-0055

2002 - Fleetwood Prowler Travel Trailer, 26 ft, queen bedroom, central h/a, microwave, 2 entry doors, dining room slide-out, great condition! \$12,000 B/O 209-239-7576

2001 - F-150, 20in.rims,billet grill,custom stereo,flow master, spray bed liner,very clean, 38,000 miles, 16,900 o.b.o. 209-599-3130

VACATION RENTALS

Las Vegas, NV - Tahiti 5-Star Deluxe 1-bedroom Condominium, sleeps 4 is available 2/19-25/2005 for \$125 a night or \$700/wk. 209-239-4979

Tahoe - South Lake Tahoe is beautiful in the fall. 4B, 2Bath, close to hiking, biking trails. 925-484-3162

SOUTH LAKE TAHOE - 3Bed-

room 2 Bath Chalet, comfortably furnished, all amenities,Enjoy fall colors in Tahoe!!Off-Season Rates! RESERVE NOW! 209-599-4644

Gualala - Gualala Stunning Whitewater Ocean Views. 2b/2ba, hot tub, bbq, walking distance to downtown, restaurants, shops, spa. Discount for 7 day stays! 925-606-1845

WANTED

Looking for (2) 49ers vs Miami tickets any location will do. Ask for Jim. 925-455-8788

Need someone to sand blast and powder coat old iron 4 piece twin bed frame. Ripon area. 209-599-3994

Wanted Individual to remove popcorn from my ceiling (entry way and hall). 925-449-4093

Want non-working chest freezer for grain storage. I can haul. 209-239-7888

House cleaner. Twice a month. Must be reliable and have references. 925-449-6963

Pre-v.92 external 56K modem for Windows-based PC, with software. US Robotics 5686D or earlier; other models OK. 510-728-4336

SALARY PROGRAM ALLOCATIONS

Structure	Merit Allocation %	Promotion Allocation %	Structure Movement %
Firefighter Chief's (050)	2.0	0.4	3.0
Security (050)	2.0	0.4	3.3
S&E's (200s)	1.6	0.4	N/A
Technical (300s)	1.6	0.4	1.5
Admin. Mgmt. (196-197)	1.6	0.4	5.0
Health & Safety (101) Legacy			
Exempt Admin. (102)	1.6	0.4	2.0
Administrative Services (Axx)	1.6	0.4	3.0
Audit (Bxx)	2.0	0.4	0.0
Financial Services (Cxx)	1.6	0.4	2.0
HR & Training (Hxx)	2.5	0.4	2.4
Legal (Dxx)	2.0	0.4	3.3
MIS / Web (Exx)	3.0	0.4	2.3
Procurement / Material	1.6	0.4	1.9
Publications / Art / Rel. (Gxx)	1.6	0.4	2.4
Security (Jxx)	2.0	0.4	3.3
Counterintelligence (Kxx)	2.0	0.4	3.3
Administrative (400s)	1.6	0.4	4.0
Admin. (Non-exempt 100s)	1.6	0.4	4.0
Technical (500s)	1.6	0.4	0.0
Security (600-Sgt. / CAS)	2.0	—	2.0
Facilities (800s)	4.0	—	4.0
Firefighters	6.0	—	6.0
Machinists (900s)	2.0	—	2.0

SALARY

Continued from page 1

sions in the Bldg. 543 auditorium on the following dates: Monday, Oct. 25, 3-4:30 p.m.; Wednesday, Oct. 27, noon-1:30 p.m.; Friday, Oct. 29, 9:30 a.m.-11 p.m.

More information on the FY05 Salary Program is

available on the Compensation home page at <http://www-hr.llnl.gov/PDF/compensation/>. Questions also may be directed to your directorate's compensation representative or to members of the Compensation Division staff.



MOUSE

Continued from page 1

room actually support the ceiling above," said Marcelo Nóbrega, lead author on the *Nature* paper. "Remove the walls and you will know."

Through molecular techniques, a total of 2.3 million letters of DNA code from the 2.7-billion-base-pair mouse genome were deleted. To do this, embryonic cells were genetically engineered to contain the newly compact mouse genome. Mice were subsequently generated from these stem cells. The research team then compared the resulting mice with the abridged genome to mice with the full-length version.

A variety of features were analyzed, ranging from viability, growth, and longevity to numerous other biochemical and molecular features. Despite the researchers' efforts to detect differences in the mice with the abridged genome, none were found. "By and large, these deletions were

tolerated and didn't result in any noticeable changes," Nóbrega said.

"An important caveat, however, is that no matter how detailed our analyses, our ability to test for a particular characteristic in mice is limited. All we know is that, in the time frame examined, there were no detectable changes in the specific features that we studied."

The negligible impact of removing these sequences suggests that the mammalian genome may not be densely encoded. Similar-sized regions have previously been removed from the mouse genome, invariably resulting in mice that did not survive, because the missing

sequences contained important genes and their deletion had severe consequences for the animal.

The other authors of the study include Yiwen Zhu, Ingrid Plajzer-Frick and Veena Afzal.

This research was made possible by the National Institutes of Health Programs for Genomic Application along with support from the DOE Office of Biological and Environmental Research.



Newsline
UC-LLNL
PO Box 808, L-797
Livermore, CA 94551-0808